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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/057,455	01/24/2002	Frank Fischer	10191/2162	9707

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EXAMINER

CULBERT, ROBERTS P

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 10/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/057,455	FISCHER ET AL.	
	Examiner	Art Unit	
	Roberts Culbert	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3-9 is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>4/26/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

In the previous office action, claims 1, 2, 6, and 7 were rejected as being obvious over U.S. Patent 6,368,885 to Offenberg et al. in view of U.S. Patent 6,440,766 to Clark. However, applicant has provided evidence in this file showing that the invention was owned by, or subject to an obligation of assignment to, the same entity as U.S. Patent 6,368,885 to Offenberg et al. at the time this invention was made. Accordingly, U.S. Patent 6,368,885 to Offenberg et al. is disqualified as prior art through 35 U.S.C. 102(e), (f) or (g) in any rejection under 35 U.S.C. 103(a) in this application. Therefore the rejection of claims 1, 2, 6, and 7 over U.S. Patent 6,368,885 to Offenberg et al. in view of U.S. Patent 6,440,766 to Clark has been withdrawn.

However, rejections based on a newly discovered reference follow.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,287,885 to Muto et al. in view of U.S. Patent 6,440,766 to Clark.

Referring to Figures 8A-8J, Muto et al. teaches a method of forming a micromechanical component structure comprising: providing a substrate (14) having a front side and a back side, patterning the front side of the substrate (Figure 8E), at least partially covering the front side of the substrate with a protective layer (22), patterning the back side of the substrate, (Figure 8G) and at least partially removing the protective layer from the patterned front side of the substrate (Figure 8J).

Regarding Claim 2, Muto teaches that the substrate has a wafer substrate (14a), a first sacrificial layer (14c) situated on the wafer substrate and a micromechanical function layer (14b) situated on the first sacrificial layer, the micromechanical function layer forming the front side and the wafer substrate forming the backside.

Muto does not teach that the protective layer contains germanium.

Clark teaches that Germanium release masks are suitable for temporary protection of silicon on insulator micromechanical (MEMS) components during the fabrication process. (Col. 7, Lines 64-67)

It would have been obvious to one of ordinary skill in the art at the time of invention to use a micromechanical component protective layer containing germanium as described by Clark as a protective layer in the micromechanical component fabrication process taught by Muto in order to suitably protect sensitive frontside MEMS elements during backside processing.

One of ordinary skill in the art would have been motivated to use the germanium protective layer of Clark since Clark teaches that the Germanium protective layer is suitable for protecting micromechanical structures during release etching, specifically, released silicon-on-insulator structures, and provides numerous advantages. See (Col. 3, Lines 37-67) for example.

Allowable Subject Matter

Claims 3-9 are allowed.

The following is an examiner's statement of reasons for allowance:

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The prior art of record fails to teach or render obvious a method of forming a micromechanical component structure comprising: providing a substrate having a front side and a back side, patterning the front side of the substrate, at least partially covering the front side of the substrate with a protective layer, patterning the back side of the substrate, at least partially removing the protective layer from the patterned front side of the substrate, and forming a hard-surface mask on the front side of the substrate, the protective layer being formed selectively in openings in the hard-surface mask.

Further, the prior art of record fails to teach or render obvious a method of forming a micromechanical component structure comprising: providing a substrate having a front side and a back side, patterning the front side of the substrate, at least partially covering the front side of the substrate with a protective layer, patterning the back side of the substrate, at least partially removing the protective layer from the patterned front side of the substrate, forming a first hard-surface mask on the front side of the substrate and forming the protective layer over an entire surface of the first hard-surface mask.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Roberts Culbert whose telephone number is (571) 272-1433. The examiner can normally be reached on Monday-Friday (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (571) 272-1439. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

R. Culbert



SUPPLEMENTAL EXAMINATION
TECHNOLOGY CENTER 1/00